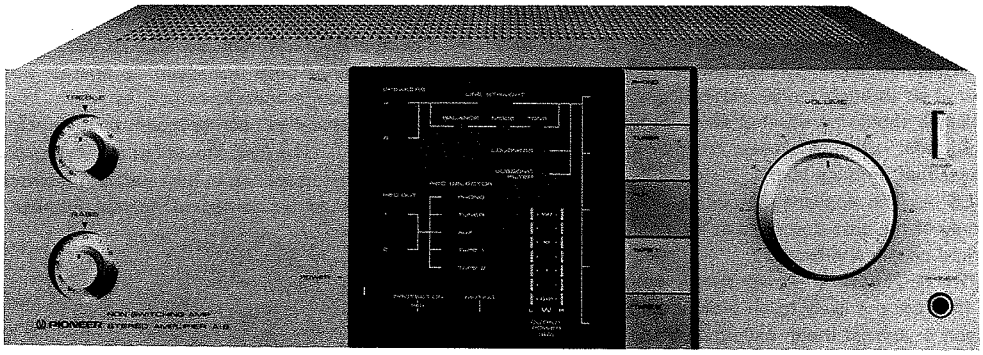
Operating Instructions

NON SWITCHING AMP
STEREO AMPLIFIER
A-8

KU
KC



IMPORTANT NOTICE

The serial number for this equipment is located on the rear panel. Please write this serial number on your enclosed warranty card and keep in a secure area. This is for your security.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

PIONEER®

SAFETY INSTRUCTIONS

READ INSTRUCTIONS — All the safety and operating instructions should be read before the appliance is operated.

RETAIN INSTRUCTIONS — The operating instructions should be retained for future reference.

HEED WARNING — All warnings on the appliance and in the operating instructions should be adhered to.

FOLLOW INSTRUCTIONS — All operating and use instructions should be followed.

WATER AND MOISTURE — The appliance should not be used near water — for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, or near a swimming pool, etc.

LOCATION — The appliance should be installed in a stable location.

WALL OR CEILING MOUNTING — The appliance should not be mounted to a wall or ceiling.

VENTILATION — The appliance should be situated so that its location or position does not interfere with its proper ventilation. For example, the appliance should not be situated on a bed, sofa, rug, or similar surface that may block the ventilation openings; or, placed in a built-in installation, such as a bookcase or cabinet that may impede the flow of air through the ventilation openings.

HEAT — The appliance should be situated away from heat sources such as radiators, heat registers, stoves, or other appliances (including amplifiers) that produce heat.

POWER SOURCES — The appliance should be connected to a power supply only of the type described in the operating instructions or as marked on the appliance.

POWER-CORD PROTECTION — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.

CLEANING — The appliance should be cleaned only with a polishing cloth or a soft dry cloth. Never clean with furniture wax, benzine, insecticides or other volatile liquids since they may corrode the cabinet.

POWER LINES — An outdoor antenna should be located away from power lines.

NONUSE PERIODS — The power cord of the appliance should be unplugged from the outlet when left unused for a long period of time.

OBJECT AND LIQUID ENTRY — Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

DAMAGE REQUIRING SERVICE — The appliance should be serviced by Pioneer authorized service center or qualified service personnel when:

- The power-supply cord or the plug has been damaged; or
- Objects have fallen, or liquid has been spilled into the appliance; or
- The appliance has been exposed to rain; or
- The appliance does not appear to operate normally or exhibits a marked change in performance; or
- The appliance has been dropped; or the enclosure damaged.

SERVICING — The user should not attempt to service the appliance beyond that described in the operating instructions. All other servicing should be contacted nearest Pioneer authorized service center.

CONTENTS

Features 3
Rear Panel Facilities 4
Connection Diagram 4
Connecting the Components 5
Front Panel Facilities 7
Operations 10
Using the Tape Decks 11
Effective Uses 12
Troubleshooting 14
Specifications 15
Precautions when Moving and Installing the Unit 16
Tape 1, 2 Jacks for Increased Versatility 16

FEATURES

NON SWITCHING AMP for Power amplifier

The power amplifier section adopts a Non-Switching Amplifier system which combines the merits of the class A amplifier's high quality and the class B amplifier's high efficiency for a

Continuous power output of 90 watts* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.005% total harmonic distortion.

The voltage amplification stage features two current detector circuits to control the bias circuit voltage and prevent the current flowing to the power transistors from being cut off. As a result of these innovations, the distortion generated when the transistors are switched is suppressed, the dynamic distortion is improved and the sound takes on an extra dimension in clarity extended to the high-frequency range.

Power amplifier with DC servo circuit

The power amplifier features a DC servo circuit employing an operational amplifier. By adopting a DC servo circuit and incorporating an FET differential input circuit in the first stage, it has become possible to cut out the coupling capacitors, which cause coloration in the sound quality, and provide a direct-coupled circuitry configuration from the AUX, TUNER and TAPE terminals through the outputs. As a result, virtually distortion-free sound reproduction is ensured across a wide frequency spectrum from the ultra-low range to the ultra-high range.

Line Straight Switch Provided

This unit comes with a unique line straight switch which can be flipped to allow the signals to bypass the tone control circuit, balance volume and mode switch. It is thus easy to provide a simple circuit configuration—something which is extremely important as far as the purity of the sound heard is concerned.

MM/MC Equalizer With High S/N Ratio

The equalizer amplifier is provided with a first stage differential input and ICL configuration, and it employs rigorously screened resistor and capacitor elements to realize a phono signal-to-noise ratio of 90 dB with an MM cartridge and of 72 dB (IHF-A) with an MC cartridge as well as an RIAA deviation of ± 0.2 dB over 20 to 20,000 hertz. The maximum allowable input, at 200 mV for an MM cartridge and of 20 mV for an MC cartridge (1 kHz, 0.0015% THD), is more than enough for the best sound quality, enabling virtually distortion-free record play even with music characterized by high peaks.

Nested Feedback Loops (N F L)

The power amplifier section adopts a Nested Feedback Loops technology, which aims for improvement in distortion by involving the use of the nested differentiating feedback in multiple form from the output stage. This technology initiated by Associate Professor Edward M. Cherry of Monash University, Australia.

Recording Selector Switch/Indicator Featured

This switch allows you to record another program source onto a tape in your tape deck even while you are listening to the source which you have selected with the FUNCTION switch. The indicator tells you exactly what is being recorded and what is being played at a glance.

Load Capacitance Selector Switch

The cartridge load capacitance switch (High 400 pF, Low 200 pF) brings out the best in the performance of your MM cartridge. It also allows the characteristics of the cartridge to be varied and the sound aligned with your personal preference.

Load Impedance Selector Switch for MC Cartridges

This load impedance selector switch (high 100 Ω, low 33 Ω), designed only for MC cartridges, does full justice to the delicate nuances in sound which are reproduced by the MC cartridge.

Pictographic Input/Output Display

By using pictographs for the function position and speaker output display, operational ease is enhanced.

Protection Indicator

As soon as the protection circuit is actuated to protect the amplifier from damage when the speaker terminals have been shortcircuited in error or as soon as the muting circuit, which functions to prevent the unpleasant noise heard when the power is switched on and off, is made operational, the speaker output is cut off and indication is made by this red protection indicator lamp. The lamp changes over to green once the amplifier is operating normally again.

LED Power Meter

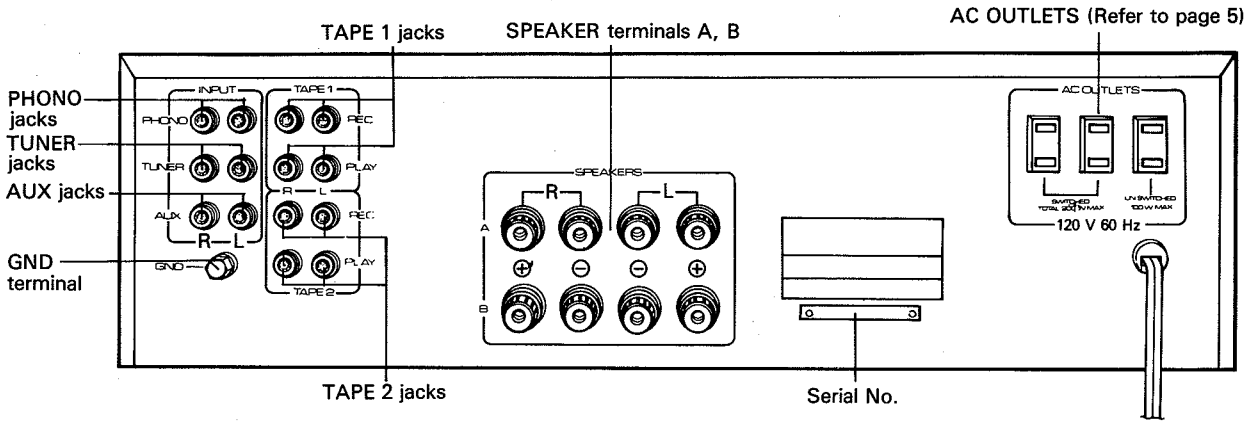
The output level meter employs a 7-point LED with a fast response to give an accurate indication of the output peaks. In addition, the furthermost LED lights up red as an easily distinguishable warning that the output signals are being clipped.

Attractively Styled Group Display Panel Design

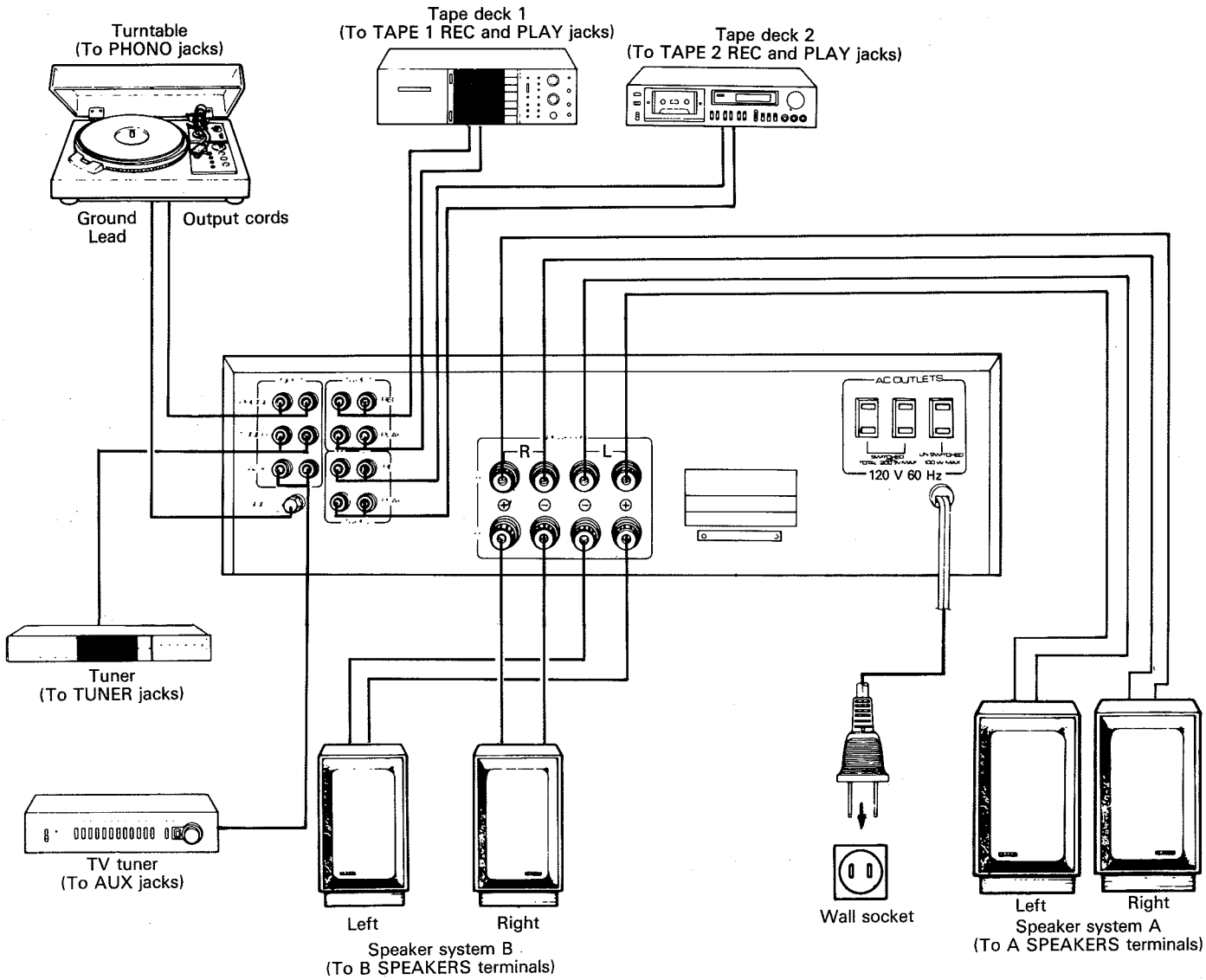
All the function switches and volume control which are used regularly are positioned on the right while all the sub-controls which are usually set up and then left without further adjustment are housed behind a movable panel at the left. All the indicators that show the signal flow, output level and other modes of operation at a glance are housed on a panel in the center of the unit.

* *Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifiers.*

REAR PANEL FACILITIES



CONNECTION DIAGRAM



CONNECTING THE COMPONENTS

CAUTIONS WHEN CONNECTING

- Do not switch on the power to the stereo amplifier and other stereo components until all the connections of the stereo system have been completed.
- Use the accessory connecting cords which come with each of the components (tape deck, tuner, etc.) for the connections.
- The "L" and "R" on the stereo amplifier's input and output jacks stand for left channel and right channel, respectively.
- Connect the pin plugs of the connecting cords securely. Otherwise the sound may not be heard or noise will be generated.

CONNECTING THE SPEAKER SYSTEMS

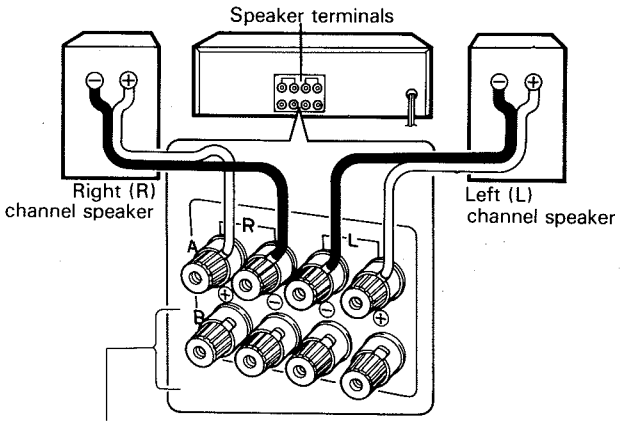
There are two sets of speaker output terminals. Use the top set of terminals (A) when connecting only one set of speakers. When facing the system (in the listening position), connect the speaker system on the left to the left channel terminals and the speaker system on the right to the right channel terminals.

Cautions when connecting the speakers

1. The speaker output terminals have polarities: minus (black) and plus (red). The input jacks on the speakers also have plus and minus polarities. When connecting, make sure that these polarities are aligned: plus to plus and minus to minus. If the left and right speaker polarities are misaligned, the reproduced sound will not display a natural stereo effect.
2. Use speakers with a **nominal impedance ranging from 6 ohms to 16 ohms.** But when listening to a program with **two sets of speakers connected, make sure that the nominal impedance is between 12 ohms and 32 ohms.**

Stripping and connecting the speaker cords (Fig. 2)

1. Strip about 10 mm of the covering from the speaker cords.
2. If the strands at the tip of the cord are pointing in all directions, twist them with your thumb and forefinger. **Otherwise some of the strands may come into contact with other terminals and cords and cause a short.**
3. Rotate the terminal cap counterclockwise through about 4 or 5 turns.
4. Insert the speaker cord into the terminal's slit.
5. Now rotate the terminal cap clockwise and tighten up.
6. Make sure that none of the lead wires in the cords protrude.



All these terminals are used when connecting second pairs of speaker systems.

Fig. 1

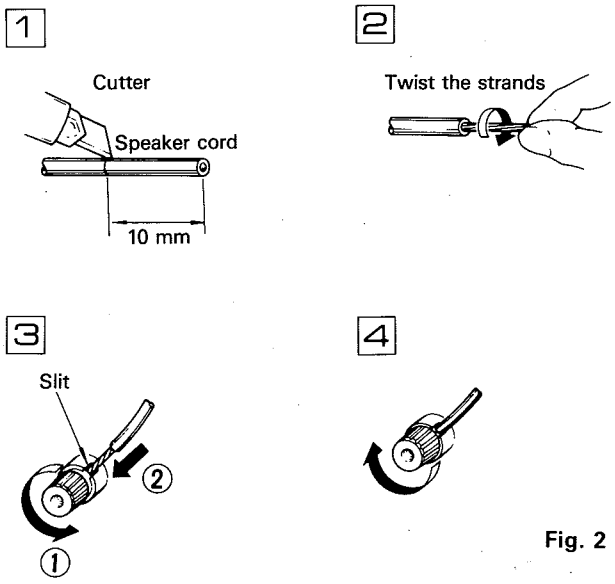


Fig. 2

USING THE AC OUTLETS

The power cords of the stereo components can be connected to the AC outlets on the amplifier's rear panel.

SWITCHED (TOTAL 200 W MAX)

The power supplied through these outlets is coupled to the operation of the amlifier's power switch. The maximum power capacity of the components which may be connected to these outlets is 200 W.

UNSWITCHED (100 W MAX)

The power is always supplied through this outlet regardless of the position of the amplifier's power switch. The maximum power capacity of the component which may be connected to this outlet is 100 W.

CONNECTING THE TURNTABLE (Fig. 3)

- A head amplifier for the MC (moving coil) cartridge is built into this stereo amplifier. It is possible to connect two different types of cartridges, MM (moving magnet) and MC (moving coil) and select them with the selector switch on the front panel.
- Connect the ground lead of the turntable to the GND terminal on the amplifier.

NOTE:
Depending on the method used by your turntable's cartridge to generate electrical signals, the output terminals on the turntable may be connected to terminals other than the PHONO jacks. Read through the instructions accompanying the cartridge and connect properly.

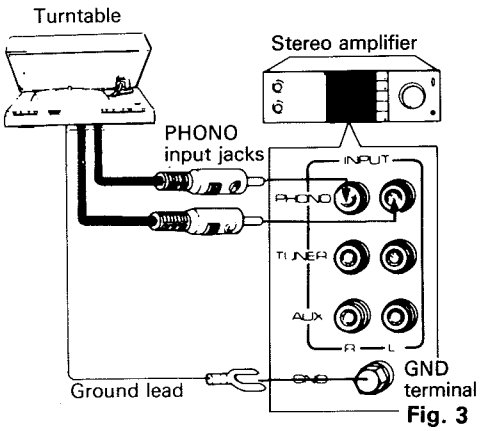


Fig. 3

CONNECTING THE TUNER (Fig. 4)

Connect the unit's TUNER jacks to the output jacks on the tuner using the pin plug cords. Connect the left and right channels properly.

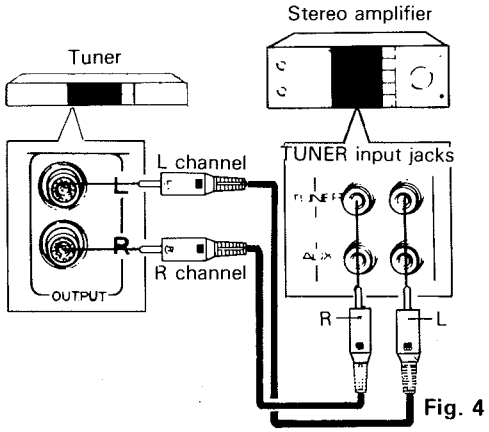


Fig. 4

CONNECTING THE AUX JACK (Fig. 5)

These jacks are used to hook up a TV tuner, cartridge tape player or tape deck. Connect the unit's AUX jacks to the output or PLAY jacks on the component using the pin plug cords.

CONNECTING THE TAPE DECK (Fig. 6)

There are two sets of input and output jacks for the tape deck, TAPE 1 and TAPE 2. Two decks can be connected for tape copying (dubbing) or for simultaneous recording.
Use the TAPE 1 jacks when connecting only one deck.

Connections for recording
Connect the unit's TAPE jacks labeled REC to the LINE INPUT (REC) jacks on the tape deck using the pin plug cords.

Connections for playback
Connect the unit's TAPE jacks labeled PLAY to the LINE OUTPUT (PLAY) jacks on the tape deck using the pin plug cords.

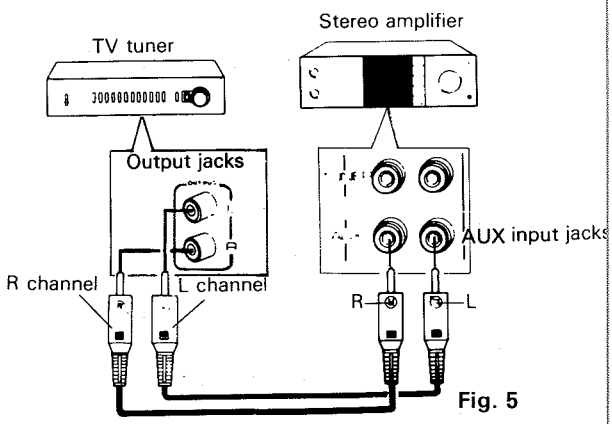


Fig. 5

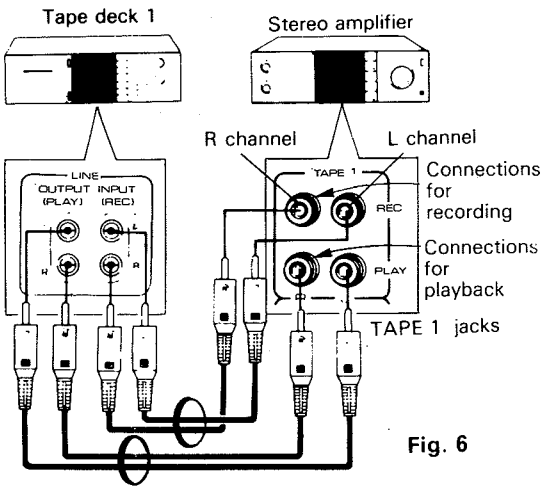
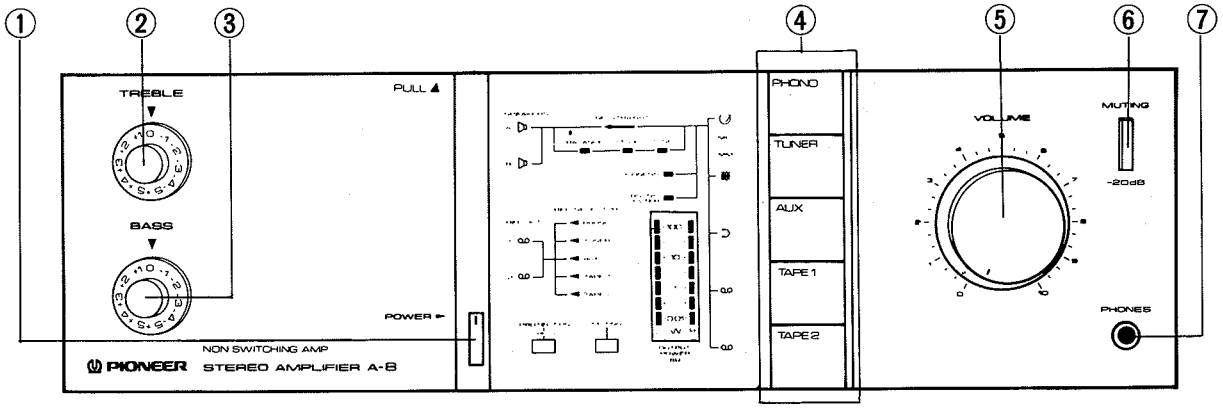


Fig. 6

FRONT PANEL FACILITIES



① POWER SWITCH

Power is supplied to the stereo amplifier as soon as this switch is depressed to the ON position.
The power is turned off when the switch is released to the OFF position. As soon as the power switch has been set to ON, the muting circuit is actuated, the PROTECTION-RED indicator lights up red/and after about 6 seconds when the muting circuit is released, the indicator goes from red to green.

② TREBLE CONTROL

This is used to adjust the treble (high-frequency range) sound. Rotate this control with the LINE STRAIGHT-OFF switch set to the depressed position. The treble is emphasized when the control is rotated clockwise from its center position and attenuated when it is rotated counterclockwise.

③ BASS CONTROL

This is used to adjust the bass (low-frequency range) sound. Rotate this control with the LINE STRAIGHT-OFF switch set to the depressed position. The bass is emphasized when the control is rotated clockwise from its center position and attenuated when it is rotated counterclockwise.

④ FUNCTION SWITCHES

These are used to select the sound source. At the left of each switch there is a symbol function indicator which lights when the corresponding switch has been depressed. This indicates that the lighted function has been selected.

PHONO: Depress for playing records on a turntable connected to the PHONO jacks.

TUNER: Depress for listening to a program on a tuner connected to the TUNER jacks.

AUX: Depress for listening to the sound from a stereo component connected to the AUX jacks.

TAPE 1: Depress to listen to a tape in a tape deck connected to the TAPE 1 jacks or to monitor a recording.

TAPE 2: Depress to listen to a tape in a tape deck connected to the TAPE 2 jacks or to monitor a recording.

NOTE:
Depress only one FUNCTION switch at a time. The desired program source may not be selected if two or more switches are depressed at the same time.

⑤ VOLUME CONTROL

This is used to adjust the volume of sound heard through the speakers or headphones. No sound is heard when it is set to the "0" position. To increase the volume, rotate this control slowly clockwise (↷).

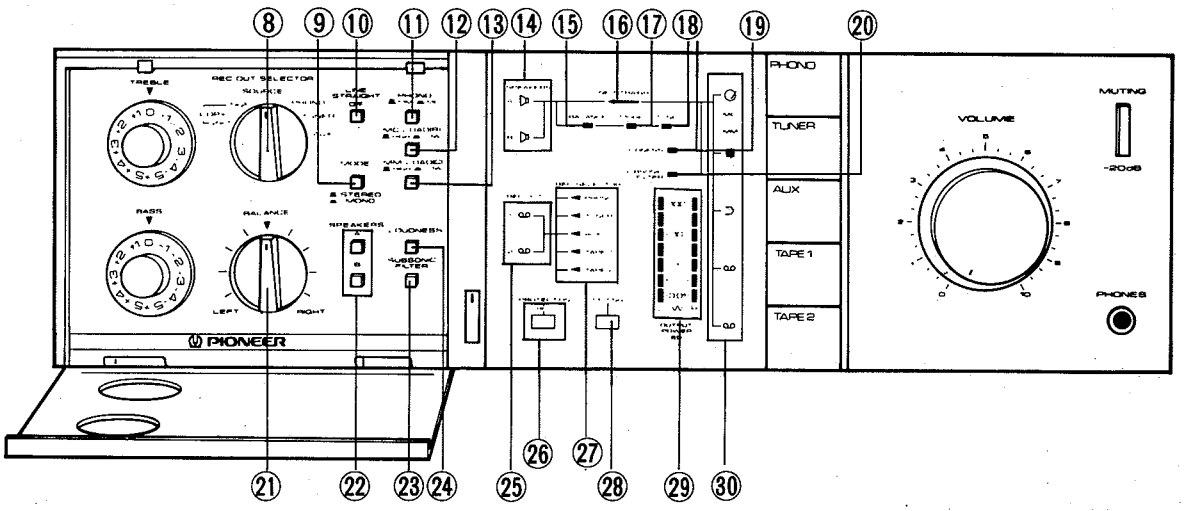
⑥ MUTING –20 dB SWITCH

The volume is attenuated by –20 dB when this switch is depressed to the ON position (MUTING indicator lights). The switch can be used effectively when the stylus descends onto the record during record play, when the sound is to be turned down temporarily and when you want to adjust the sound precisely as you listen to a program source under low sound level conditions.

⑦ PHONES JACK

Connect the plug on your headphones to this jack when listening to a program in private.

To listen to a program through the headphones, release both the SPEAKERS A and B switches.



⑧ REC OUT SELECTOR SWITCH

This is used to select the output signal which is fed out to the TAPE REC jacks.

COPY 2 ▶ 1: The output signal is fed out from the TAPE 2 PLAY jacks to the TAPE 1 REC jacks (when dubbing a tape from TAPE 2 to TAPE 1).

COPY 1 ▶ 2: The output signal is fed out from the TAPE 1 PLAY jacks to the TAPE 2 REC jacks (when dubbing a tape from TAPE 1 to TAPE 2).

SOURCE: The output signal of the program source (PHONO, TUNER, AUX, etc.) selected by the FUNCTION switch is fed out to the TAPE 1 REC and TAPE 2 REC jacks.

PHONO: The output signal from the PHONO jacks is fed out to the TAPE 1 REC and TAPE 2 REC jacks.

TUNER: The output signal from the TUNER jacks is fed out to the TAPE 1 REC and TAPE 2 REC jacks.

AUX: The output signal from the AUX jacks is fed out to the TAPE 1 REC and TAPE 2 REC jacks.

⑨ MODE SELECTOR

This is used to select the mode.

STEREO: Set here for ordinary stereo listening.

MONO: Set here to mix the left and right channel stereo input signals and hear them in mono through both the left and right speakers.

⑩ LINE STRAIGHT-OFF SWITCH

When this switch is released to the ON position (the LINE STRAIGHT indicator lights), the signal from the input jacks is directly sent to the power amplifier input without passing through the tone control circuit. When this switch is depressed to the OFF position, the input signal's tone quality can be adjusted with the tone controls.

⑪ PHONO MM/MC SELECTOR SWITCH

This switch is set to the position that corresponds to the type of cartridge being used when listening to a record on a turntable connected to the PHONO jacks.

MM: Set here when using an MM cartridge.

MC: Set here when using an MC cartridge.

NOTE:

Some MC cartridges on the market have the same high output power as MM cartridges. Consult the instructions accompanying the cartridge.

⑫ MC LOAD (R) SWITCH

This switch is set to the position that corresponds to the output impedance of the MC (moving coil) cartridge being used for record play. (For details, refer to "Effective Uses" on page 12.)

⑬ MM LOAD (C) SWITCH

This switch is set to the position that corresponds to the designated load capacitance of the MM (moving magnet) cartridge being used for record play. (For details, refer to "Effective Uses" on page 12.)

⑭ SPEAKERS A/B INDICATORS

These light when one of the SPEAKERS switches has been depressed.

⑮ BALANCE INDICATOR

⑯ LINE STRAIGHT INDICATOR

This lights when the LINE STRAIGHT-OFF switch has been released to ON in place of the BALANCE, MODE and TONE indicators.

⑰ MODE INDICATOR

⑱ TONE INDICATOR

This lights when the tone control circuitry has been actuated.

⑲ LOUDNESS INDICATOR

This lights when the LOUDNESS switch has been set to ON.

⑳ SUBSONIC FILTER INDICATOR

This lights when the SUBSONIC FILTER switch has been set to ON.

㉑ BALANCE CONTROL

This is used to adjust the balance of the sound from the left and right channels. When rotated clockwise from its center position, the volume of the left (L) channel is reduced; when rotated counterclockwise, the volume of the right (R) channel is reduced.
To adjust the balance, first set the BALANCE control to its center position, set the MODE selector to MONO and rotate the control so that the sound seems to be coming from the midpoint between the left and right speakers.

㉒ SPEAKERS SWITCHES

These are used to select the speakers through which you will listen to the sound. When one of the switches is depressed, the corresponding speaker indicator will light to indicate that the selected speakers are now working.

A: The sound is heard from the speakers connected to the speaker A terminals.

B: The sound is heard from the speakers connected to the speaker B terminals.

No sound will be heard when SPEAKERS A and B switches are both released. This is the position at which the sound can be heard through the headphones.

㉓ SUBSONIC FILTER SWITCH

The subsonic filter with the 20 Hz cutoff frequency is actuated when this switch is depressed to the ON position (the SUBSONIC FILTER indicator lights).
This filter serves to attenuate frequencies lower than 20 Hz with a 6 dB/oct slope and, therefore, it can be used to suppress the ultra-low-range noise which is generated by record warp and other factors. This noise cannot actually be heard by the ear but it can cause cross modulation distortion and even speaker damage. Use this switch when required during record play.

㉔ LOUDNESS SWITCH

The bass and treble sound is emphasized when this switch is depressed to the ON position (LOUDNESS indicator lights) under low volume listening conditions.
When the volume of sound is low, the capability of the ear to pick up the bass and treble sound drops off, compared with high volume listening conditions. The LOUDNESS switch compensates for this characteristic of the ear. The bass and treble are emphasized when the switch is set to ON and the sound comes alive even when the volume is low.

㉕ REC OUT 1, 2 INDICATORS

These indicate the tape deck which is recording in accordance with the position selected by the REC OUT SELECTOR switch.

㉖ PROTECTION-RED INDICATOR

This lights in red or green, depending on the operating mode of the power protection circuit.

㉗ REC SELECTOR INDICATOR

This indicates the program source (PHONO, TUNER, AUX, etc.) being recorded in accordance with the position of the REC OUT SELECTOR switch.

㉘ MUTING INDICATOR

This lights in accordance with the position of the MUTING −20 dB switch.

㉙ OUTPUT POWER 8 Ω METER

This indicates the output level when speakers with an 8-ohm impedance are connected to the speaker terminals. L is for the left channel and R for the right channel.

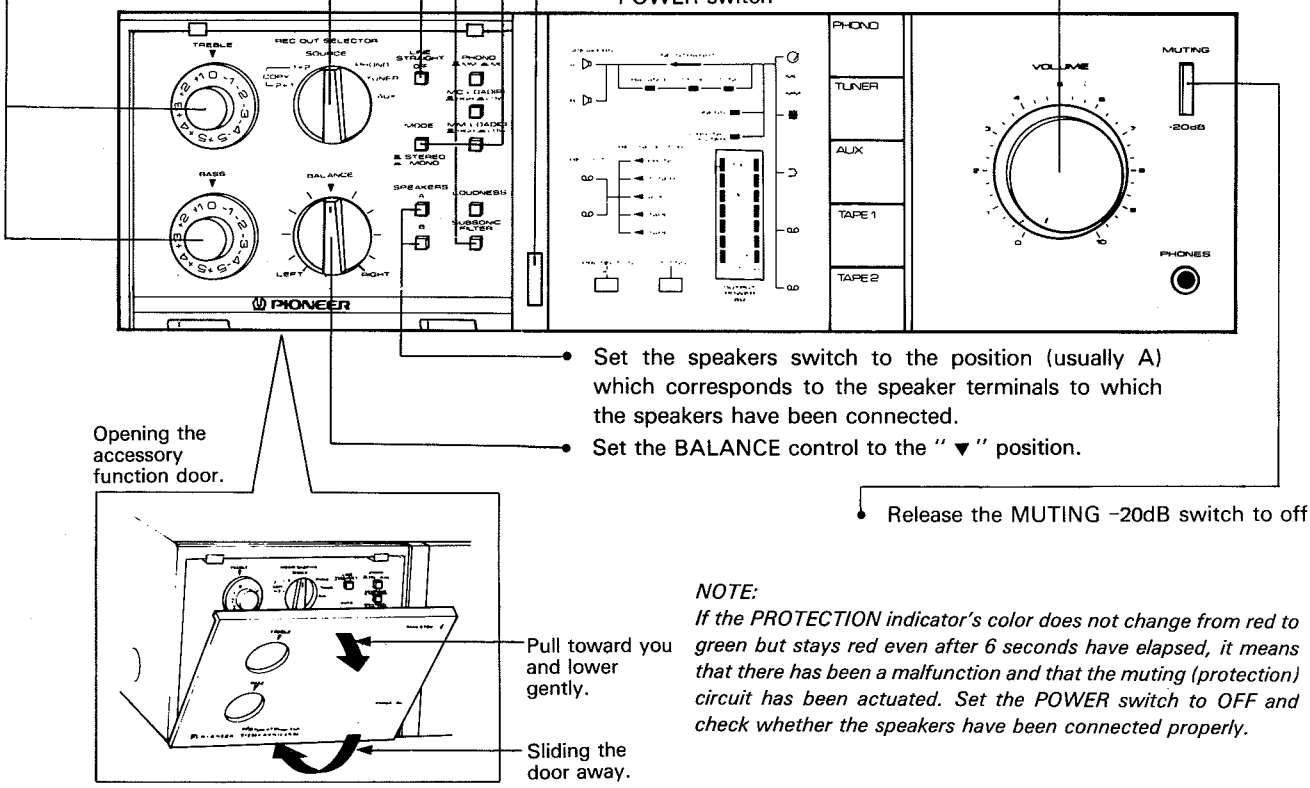
㉚ FUNCTION INDICATORS

The indicator corresponding to the selected FUNCTION switch lights.

OPERATIONS

BEFORE ALL OPERATION

Before switching on the power, set the stereo amplifier's lcontrols and switches as follows:


Set the tone controls (bass and treble) to the center " ▼ " position.
Set the REC OUT SELECTOR switch to SOURCE.
Release the LINE STRAIGHT-OFF switch to the on.
Set the SUBSONIC FILTER switch to OFF.
Set the MODE switch to STEREO.
Set the volume control to its leftmost (0) position.
POWER switch
PHONO
TUNER
AUX
TAPE 1
TAPE 2
MUTING
-20dB
PHONES
Set the speakers switch to the position (usually A) which corresponds to the speaker terminals to which the speakers have been connected.
Set the BALANCE control to the " ▼ " position.
Release the MUTING -20dB switch to off.
Opening the accessory function door.
Pull toward you and lower gently.
Sliding the door away.

NOTE:
If the PROTECTION indicator's color does not change from red to green but stays red even after 6 seconds have elapsed, it means that there has been a malfunction and that the muting (protection) circuit has been actuated. Set the POWER switch to OFF and check whether the speakers have been connected properly.

PLAYING RECORDS

The turntable which you have connected to the PHONO jacks allows play with either an MM (moving magnet) or MC (moving coil) cartridge thanks to the amplifier's facilities.

1. Depress the PHONO function switch.
2. Set th PHONO MM/MC selector switch to the position that corresponds to the cartridge being used.
3. MM cartridge: Set the MM LOAD capacitance switch to the designated rating of the cartridge.
   MC cartridge: Set the MC LOAD resistance switch to the designated rating of the cartridge.
   (For the set values, refer to "Effective Uses" on page 12.)
4. Operate the turntable and start playing records.
5. Adjust the volume with the volume control.
6. Depress the LINE STRAIGHT-OFF switch to the OFF position and then adjust the tone controls (TONE indicator, etc. lights) to achieve the sound of your preference.
7. Set the SUBSONIC FILTER switch to ON if required.

LISTENING TO BROADCASTS

1. Depress the TUNER function switch.
2. Tune in the station on the tuner.
3. Adjust the volume with the volume control.
4. Depress the LINE STRAIGHT-OFF switch to the OFF position and then adjust the tone controls (TONE indicator, etc. lights) to achieve the sound of your preference.

LISTENING TO ANOTHER COMPONENT

1. Depress the AUX function switch in line with the AUX jacks to which the component has been connected.
2. Operate the component and start play.
3. Adjust the volume with the volume control.
4. Depress the LINE STRAIGHT-OFF switch to the OFF position and then adjust the tone controls (TONE indicator, etc. lights) to achieve the sound of your preference.

USING THE TAPE DECKS

PLAYING BACK TAPES (Fig. 7)

1. When playing back a tape on the tape deck which has been connected to the TAPE 1 jacks, depress the TAPE-1 function switch. When playing back a tape on the tape deck which has been connected to the TAPE 2 jacks, depress the TAPE-2 function switch.
2. Set the tape deck to the playback mode.
3. Adjust the volume with the volume control.
4. Depress the LINE STRAIGHT-OFF switch to the OFF position and then adjust the tone controls (TONE indicator, etc. lights) to achieve the sound of your preference.

RECORDING TAPES (Fig. 8)

1. Select the program source to be recorded using the function switch and check the operation of the component.
2. Set the REC OUT SELECTOR switch to the SOURCE position.
3. Start recording in line with the procedure for recording on a tape deck. Set the MODE switch to STEREO for recording.

To record a program source (such as an FM broadcast) while you are listening to another program source (such as a record).

Set the REC OUT SELECTOR to the desired position (PHONO, TUNER, AUX) corresponding to the program source which is to be recorded. Refer to page 12 for details. The signals selected by the REC OUT SELECTOR switch are fed out now to both the TAPE 1 REC and TAPE 2 REC jacks.

NOTES:

- *The volume, tone controls (BASS and TREBLE), balance control and loudness control have no effect at all on the signals from the TAPE REC jacks of the stereo amplifier.*
- *Refer to the section "Function switches and REC OUT SELECTOR switch" on page 12 for details on how to use the REC OUT SELECTOR switch.*

When monitoring the recording at the stereo headphone jack or speakers on a deck which has a monitoring mechanism (3-head type), depress the TAPE-1 or TAPE-2 function switch in line with the tape deck used for recording.

NOTE:

A recording cannot be monitored with a 2-head tape deck even if the function switches are operated. However, it is possible to listen to the reproduced sound (at the program source side).

COPYING (DUBBING) TAPES (Fig. 9)

If you have two tape decks, you can copy (or dub) a prerecorded tape's contents onto another tape.

1. Connect the two tape decks to the TAPE 1 and TAPE 2 jacks. (Refer to "Connecting the tape deck" on page 6.)
2. Set the REC OUT SELECTOR switch to COPY-1 ▶ 2 when copying from the tape deck connected to the TAPE 1 jacks to the tape deck connected to the TAPE 2 jacks.
   Set the REC OUT SELECTOR switch to COPY-2 ▶ 1 when copying from the tape deck connected to the TAPE 2 jacks to the tape deck connected to the TAPE 1 jacks.
3. In accordance with the actual direction of the tape copying, set one of the decks to the playback mode and the other to the recording mode.

The tape copying can be monitored by depressing the TAPE-2 or TAPE-1 function switch.

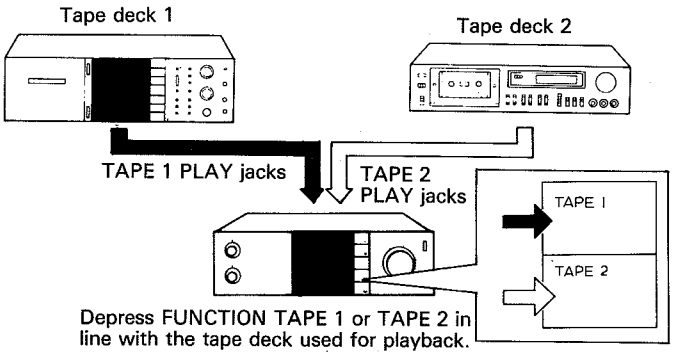

Tape deck 1
Tape deck 2
TAPE 1 PLAY jacks
TAPE 2 PLAY jacks
TAPE 1
TAPE 2
Depress FUNCTION TAPE 1 or TAPE 2 in line with the tape deck used for playback.

Fig. 7

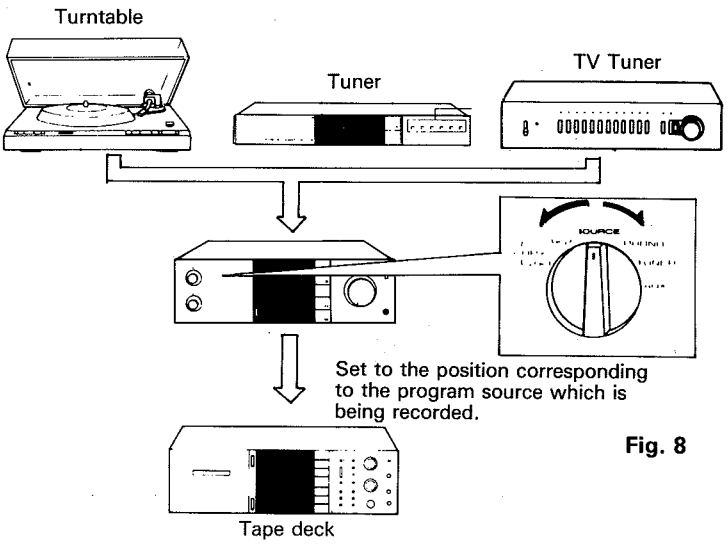


Fig. 8

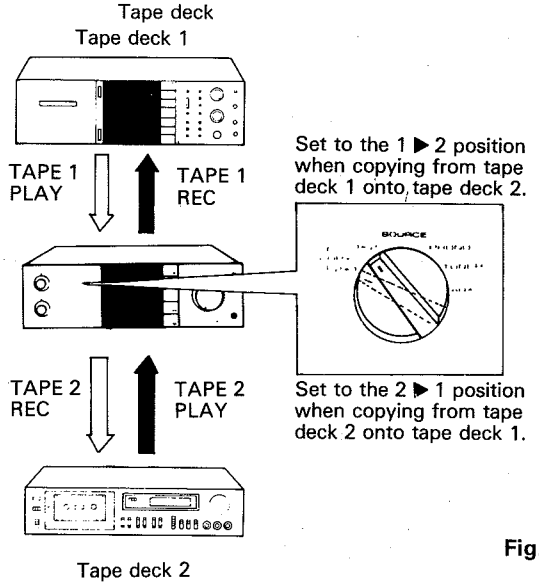

Tape deck 1
TAPE 1 PLAY
TAPE 1 REC
Set to the 1 ▶ 2 position when copying from tape deck 1 onto tape deck 2.
TAPE 2 REC
TAPE 2 PLAY
Set to the 2 ▶ 1 position when copying from tape deck 2 onto tape deck 1.
Tape deck 2

Fig. 9

EFFECTIVE USES

USING AN MM (Moving Magnet) CARTRIDGE

MM (moving magnet) cartridges have a resonance peak at the high end of the frequency response. This resonance is caused by the capacitance of the turntable's output cords, the tonearm's stray capacitance and the preamplifier's input impedance (load impedance).
In order to make the frequency response of the cartridge flat, it is necessary to set the load impedance to a value which fits the cartridge being used.

Cartridge load capacitance setting

The frequency response of a cartridge undergoes change when its load capacitance is varied. Listen to the actual sound and set the cartridge load capacitance switch to the position that yields the preferred sound (HIGH "▬" position or LOW "▮" position). Incidentally, the load impedance of an ordinary moving magnet is about 50 kohms + 200 pF.

NOTES:

- *Refer to the operating instructions of the cartridge for the specified load capacitance.*
- *Since the turntable's capacitance varies with the output cords, wiring method and other factors, a precise value cannot be obtained. Usually, however, it can be considered to be in the range of 100 pF to 200 pF. Adjust the load capacitance while listening to the record.*

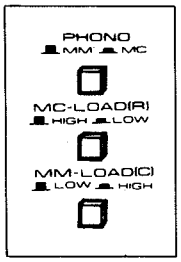


Fig. 10

USING AN MC (Moving Coil) CARTRIDGE

When playing a record with an MC cartridge, set the position of the MC cartridge load resistance switch to correspond to the designated load impedance of the cartridge. Just as with MM cartridges, the sound quality can be changed by selecting the position of the switch and so find the position which yields the sound quality of your preference.
Set the PHONO MM/MC selector switch to the MM position when using a high-output MC cartridge (output of more than 1 mV).

Position	MM-LOAD (C)	MC-LOAD (R)
▮ Release	LOW 200 pF	HIGH 100 Ω
▬ Depress	HIGH 400 pF	LOW 33 Ω

Fig. 11

PEAK POWER INDICATOR

The peak power indicator shows the output level when speaker systems with a nominal impedance of 8 ohms have been connected to the speaker terminals of this unit. The upper scale graduations indicate the output level (peak) in watts. Since a logarithmic compressed graduation scale is used, it is possible to read out the output from small levels of 0.01 W to high levels of 100 W without selecting the power range.
During an actual performance, however, the impedance of the speaker systems fluctuates in accordance with the frequency and so the value indicated is not necessarily an accurate representation of the output but only a general guideline. To measure the accurate output level, connect an 8-ohm dummy load instead of the speakers to the speaker terminals.

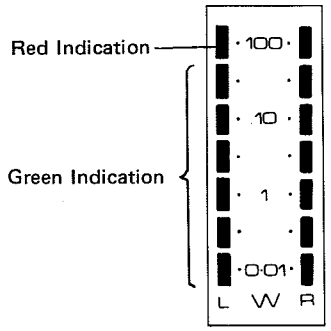


Fig. 11

FUNCTION SWITCH AND REC OUT SELECTOR SWITCH

With this model you can channel the signals of a different program source from that selected by the FUNCTION switch, to the TAPE REC terminals. For instance, if you set the REC OUT SELECTOR switch to TUNER and the FUNCTION switch to PHONO, you can record a radio program on your tape deck and, at the same time, enjoy listening to records. The relationship of the TAPE 1 REC and TAPE 2 REC terminal output signals, as determined by the REC OUT SELECTOR switch and FUNCTION switch, is as follows:

REC OUT SELECTOR positions and TAPE REC terminal output

REC SELECTOR position	TAPE REC terminal output	
	REC 1	REC 2
COPY 2→1	TAPE 2 PLAY	–
COPY 1→2	–	TAPE 1 PLAY
SOURCE	*	*
PHONO	PHONO	PHONO
TUNER	TUNER	TUNER
AUX	AUX	AUX

* When the REC OUT SELECTOR switch is set to the SOURCE position, the output signals of the program source (PHONO, TUNER, AUX) selected by the function switch are fed out.

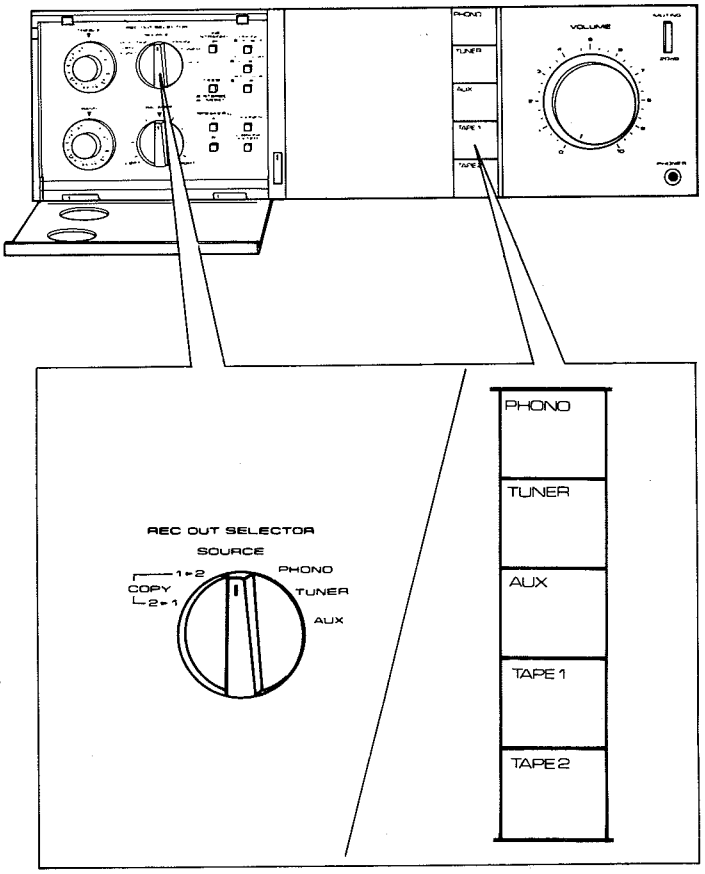


Fig. 12

TROUBLESHOOTING

Even if you suspect that something might be wrong with your amplifier, it is wise to proceed with simple checks. In many cases, improper operation is to blame. Also, the cause may lie outside the amplifier. Take the time to check the stereo components used and other electrical appliances being employed simultaneously. If the trouble is not remedied by following the checks below, turn off the power and contact an authorized Pioneer service station.

- **No sound**
  - Power switch is not at ON ⟶ Set to ON.
    (No sound is heard while PROTECTION indicator lights up red.)
  - SPEAKERS switch position does not correspond to actual speakers being used ⟶ Align to correct position.
  - Volume control is set to "0" ⟶ Rotate slowly clockwise.
  - Connecting cords have become detached from jacks ⟶ Insert pin plugs into terminals securely.
  - Speaker cords have become detached from terminals ⟶ Connect cords properly.
- **Sound heard in one channel only**
  - Balance control has been rotated fully to one side ⟶ Return control to center position.
  - One channel's input/output jacks have become disconnected ⟶ Insert the pin plugs and connecting cords into jacks properly.
- **Sound quality cannot be adjusted**
  - LINE STRAIGHT switch is released ⟶ Depress the switch to OFF position and rotate tone controls.
- **No stereo effect**
  - Mode switch has been set to MONO ⟶ Set it to STEREO.
  - Polarities of speakers and stereo amplifier are misaligned ⟶ Connect properly as instructed on page 5.

TROUBLE DURING RECORD PLAY

- **Howl heard**
  - Turntable is located too close to the speakers ⟶ Change position of turntable or speakers.
  - Installation locations of turntable or speaker are unstable ⟶ Place the turntable on a stable stand.
- **Humming noise heard**
  - Output cords or ground wire have not been connected properly ⟶ Connect the PHONO jacks and GND terminal properly.

TROUBLE WITH TAPE DECK USE

- **No recording possible**
  - REC OUT SELECTOR switch has not been set to the program source which is to be recorded ⟶ Set switch correctly.
- **No playback possible**
  - The TAPE 1 or TAPE 2 function switch has not been depressed ⟶ Set TAPE 1 or 2 switch to ON.

SPECIFICATIONS

Amplifier Section

Continuous Power Output is 90 watts* per channel, min., at 8 ohms from 20 Hertz to 20,000 Hertz with no more than 0.005% total harmonic distortion.

Total Harmonic Distortion (20 Hertz to 20,000 Hertz, 8 ohms, from TUNER)
- continuous rated power output ..... No more than 0.005%
- 45 watts per channel power output .. No more than 0.005%

Intermodulation Distortion (50 Hertz:7,000 Hertz = 4:1, 8 ohms, from TUNER)
- continuous rated power output ..... No more than 0.005%
- 45 watts per channel power output .. No more than 0.003%

Damping Factor (20 Hertz to 20,000 Hertz, 8 ohms) 60

Input Sensitivity/Impedance
- PHONO MM ..... 2.5 mV/50 kilohms
  - cartridge load capacitance:
  - PHONO MM ..... 200, 400 pF
- PHONO MC ..... 0.25 mV/100 ohms
  - cartridge load resistance:
  - PHONO MC ..... 33,100 ohms
- TUNER, AUX, TAPE PLAY 1, 2 ..... 150 mV/50 kilohms

Phono Overload Level (T.H.D. 0.0015%, 1,000 Hz)
- PHONO MM ..... 200 mV
- PHONO MC ..... 20 mV

Output Level
- TAPE REC 1, 2 ..... 150 mV
- Speaker ..... A/OFF, B/OFF (6~16 Ω)

Frequency Response
- PHONO MM (RIAA Equalization) ..... 20 Hz to 20,000 Hz±0.2 dB
- TUNER, AUX 1, 2, TAPE PLAY ..... 5 Hz to 100,000 Hz $^{+0}_{-3}$ dB

Tone Control
- BASS ..... ±10 dB (100 Hz)
- TREBLE ..... ±10 dB (10 kHz)

Filter
- LOW (SUBSONIC) ..... 20 Hz (6 dB/oct.)

Loudness Contour (Volume control set at −40 dB) ..... +9 dB (100 Hz), +3 dB (10 kHz)

Hum and Noise (IHF, short circuited A network)
- PHONO MM ..... 90 dB
- PHONO MC ..... 72 dB
- TUNER, AUX, TAPE PLAY 1, 2 ..... 110 dB

Muting ..... −20 dB

Miscellaneous

Power Requirements ..... 120 V, 60 Hz
Power Consumption ..... 250 W (UL) 490 VA (CSA)
Dimensions ..... 420 (W) x 132 (H) x 423 (D) mm
16-9/16 (W) x 5-3/16 (H) x 16-11/16 (D) in
Weight (without package) ..... 13.8 kg (30 lb 7 oz)

Furnished Parts

Operating Instructions 1

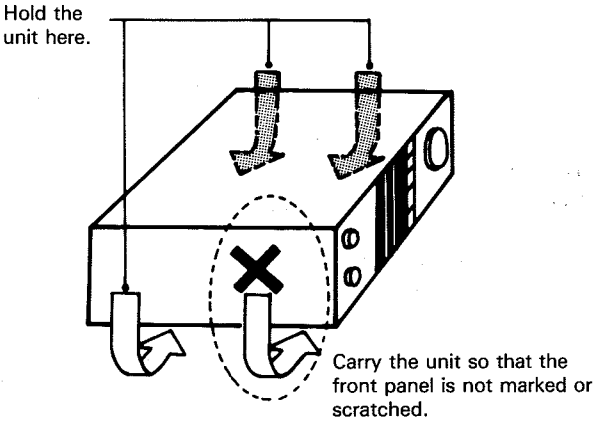
**Measured pursuant to the Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifier.*

NOTE:
Specifications and design subject to possible modification without notice.

PRECAUTIONS WHEN MOVING AND INSTALLING THE UNIT

This unit has a precision door mechanism built into the bottom panel. When moving it, bear in mind the following points:

- Do not hold the unit by the left side of the front panel.
- Ensure that the unit is installed on a flat surface.



TAPE 1, 2 JACKS FOR INCREASED VERSATILITY

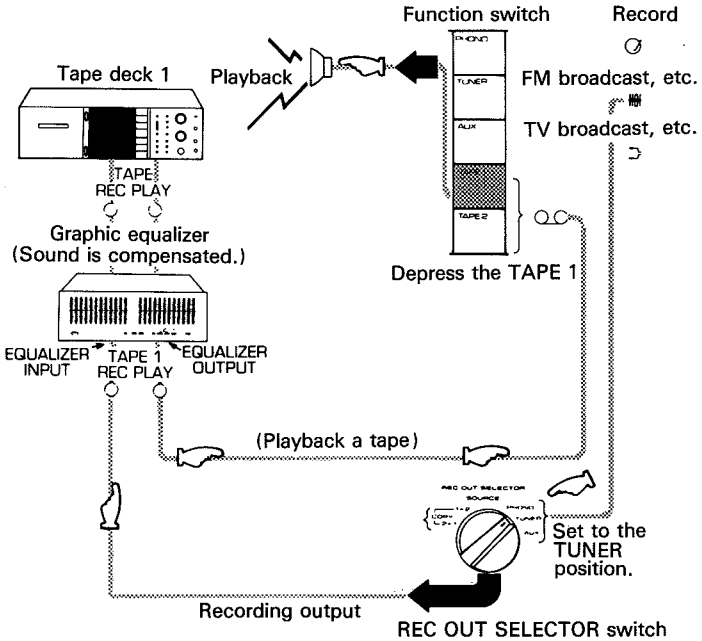
GRAPHIC EQUALIZER (SG-9)

The sound that is reproduced from audio equipment is subtly affected by the structure and acoustics of the listening room. This graphic equalizer allows the sound to be compensated for an enhanced overall acoustic effect. It also allows you to create your own individual sound.

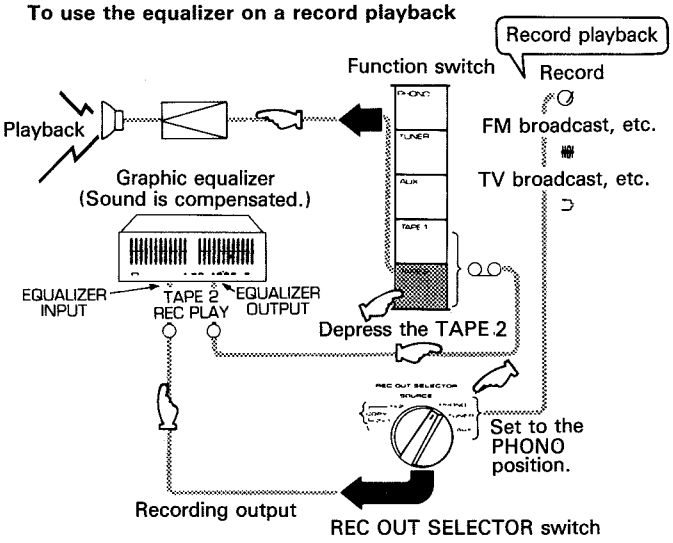
CONNECTIONS

Connect this graphic equalizer as shown in the figure on the right. (For further details on the connections and operation, refer to the relevant sections in the SG-9's Operating Instructions.)

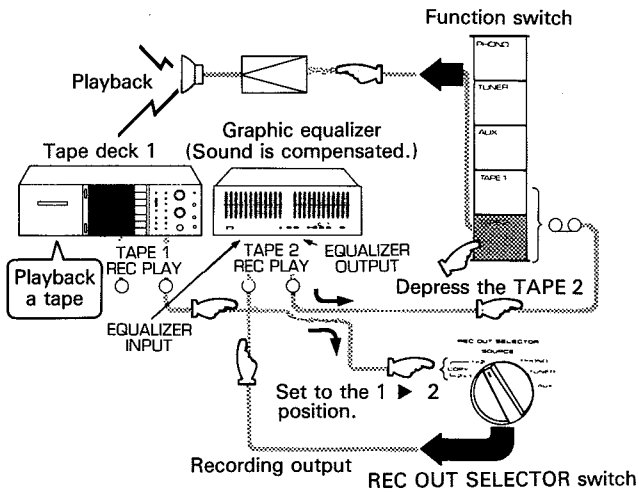
To use the equalizer on a FM broadcast recording



To use the equalizer on a record playback



To use the equalizer on a tape deck playback



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